The Power of Sleep

How Sleep Impacts Cognition, Health and Behavior

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Overview

- Importance of sleep
- Stages of sleep
- Sleep problems
- Sleep hygiene
- Nutritional tips
- When to see a doc

Importance of Sleep

- 40 million Americans may have sleep problems
- 22% are late for work or school due to sleepiness
- 40% sleep at work or school at least 2 days a week
- Problems are worse in 18-29 year old age group

National Sleep Foundation

Importance of Sleep

- Drowsiness causes 100,000 crashes each year, killing >1500 Americans and injuring 71,000

National Highway Traffic Safety Administrat

Importance of Sleep

- Strong association between sleep deprivation and obesity
  - Impaired glucose tolerance
  - Metabolic syndrome
  - Changes in appetite hormones
  - Sleep maintains muscle, lean body mass

Importance of Sleep

- Decreased ability to multi-task
- Poor judgment
- Decreased memory
- Longer response times
- Decreased concentration
- 5-6 nights in a row with 4 hours of sleep has same effect on cognition as being legally drunk
- Increased anger, impulsivity, aggression

Importance of Sleep

- PTSD is associated with sleep problems
- Depression, anxiety
- Traumatic Brain Injury
- May increase risk of suicide by 34% in patients with depression

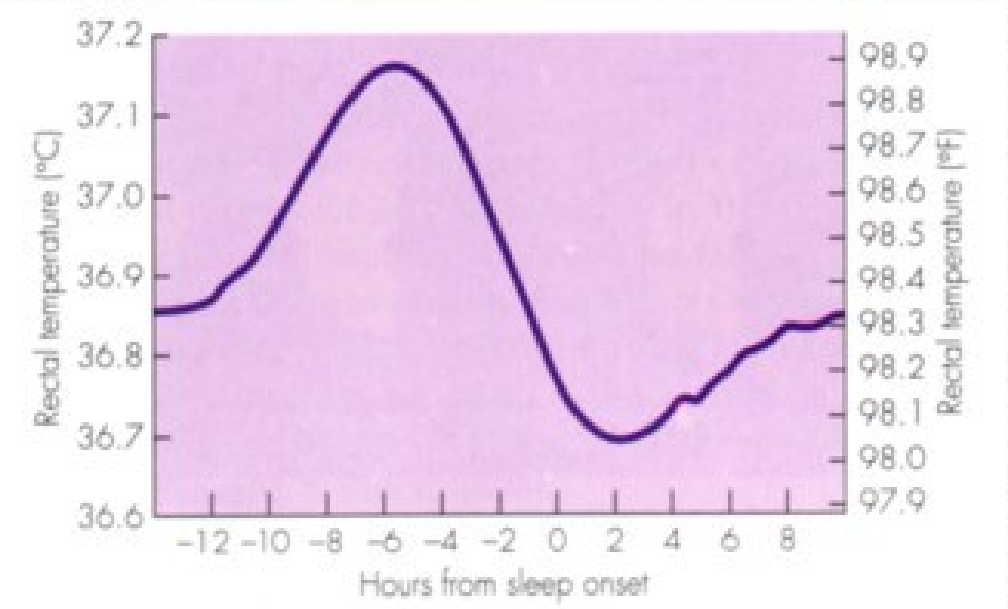
Circadian Rhythms

Endogenous circadian rhythms

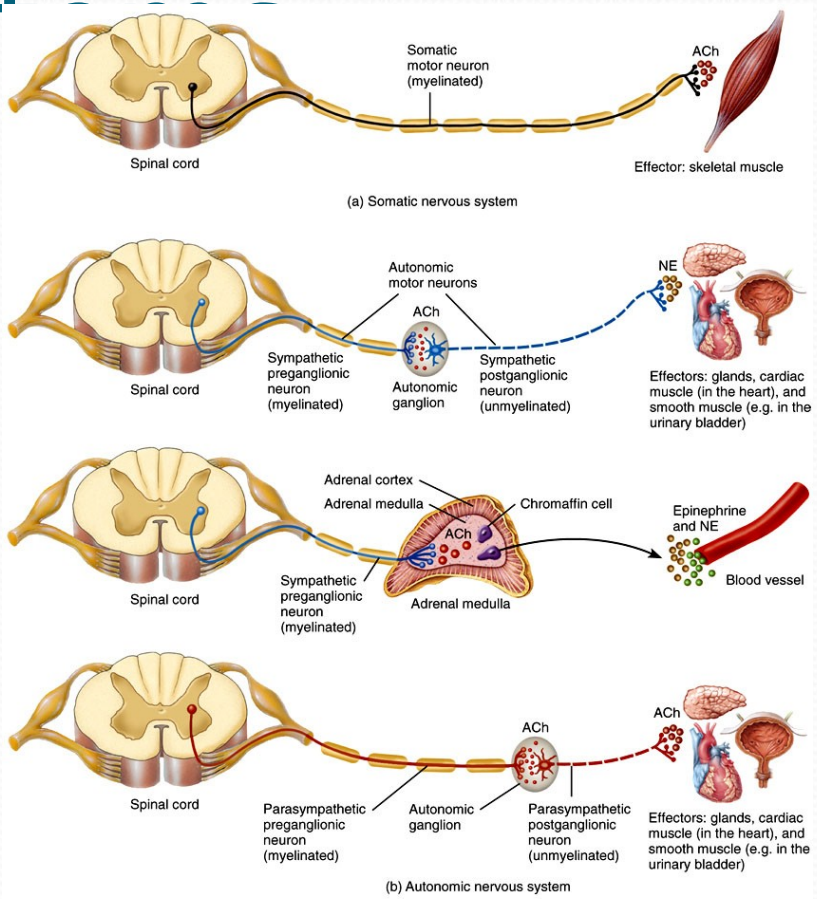
- rhythms that last about a da
- humans' last around 24.2 h

Examples:

-activity
-temperature
-waking and sleeping
-secretion of hormones
-eating and drinking



Somatic and Autonomic Nervous Sys



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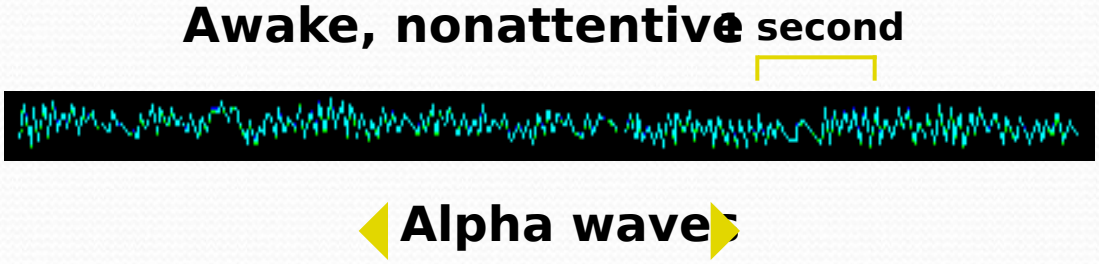
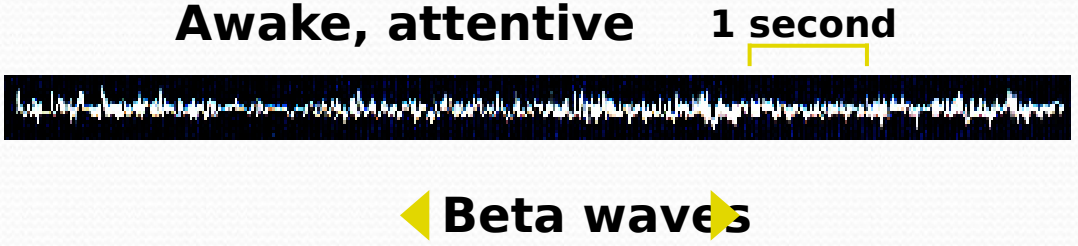
EEG Waves of Wakefulness

Awake, but non-attentive
- large, regular alpha waves

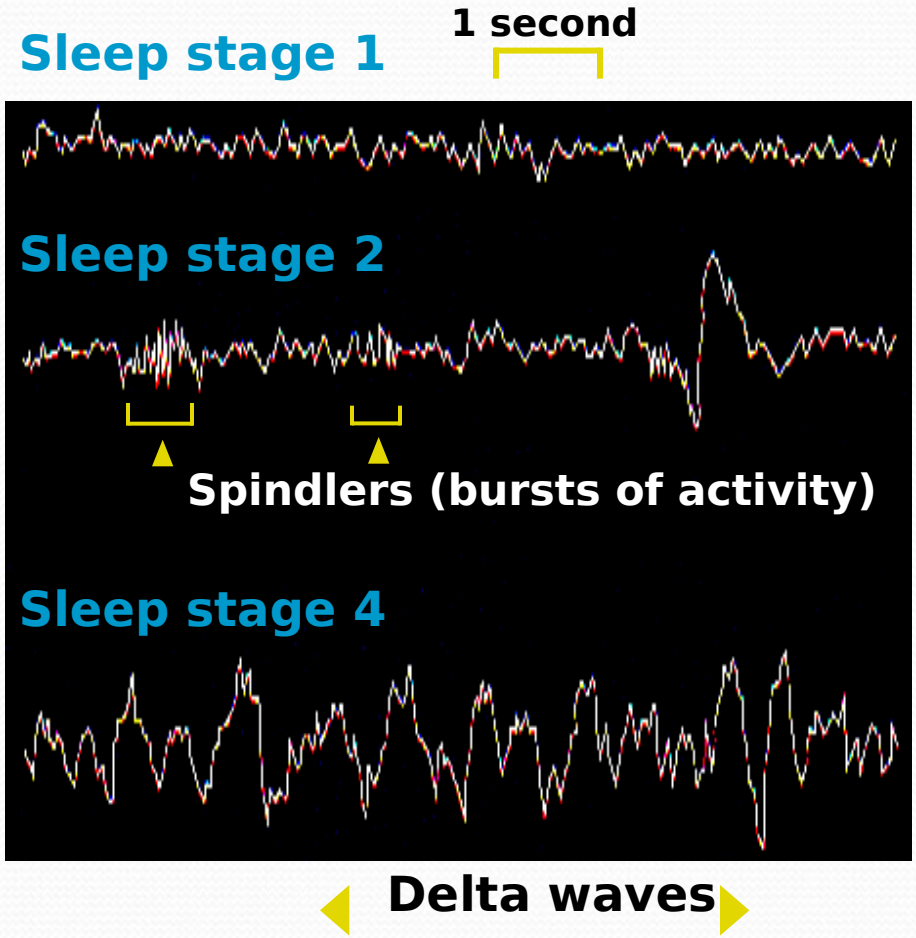


Awake and attentive - low amplitude, fast, irregular beta waves

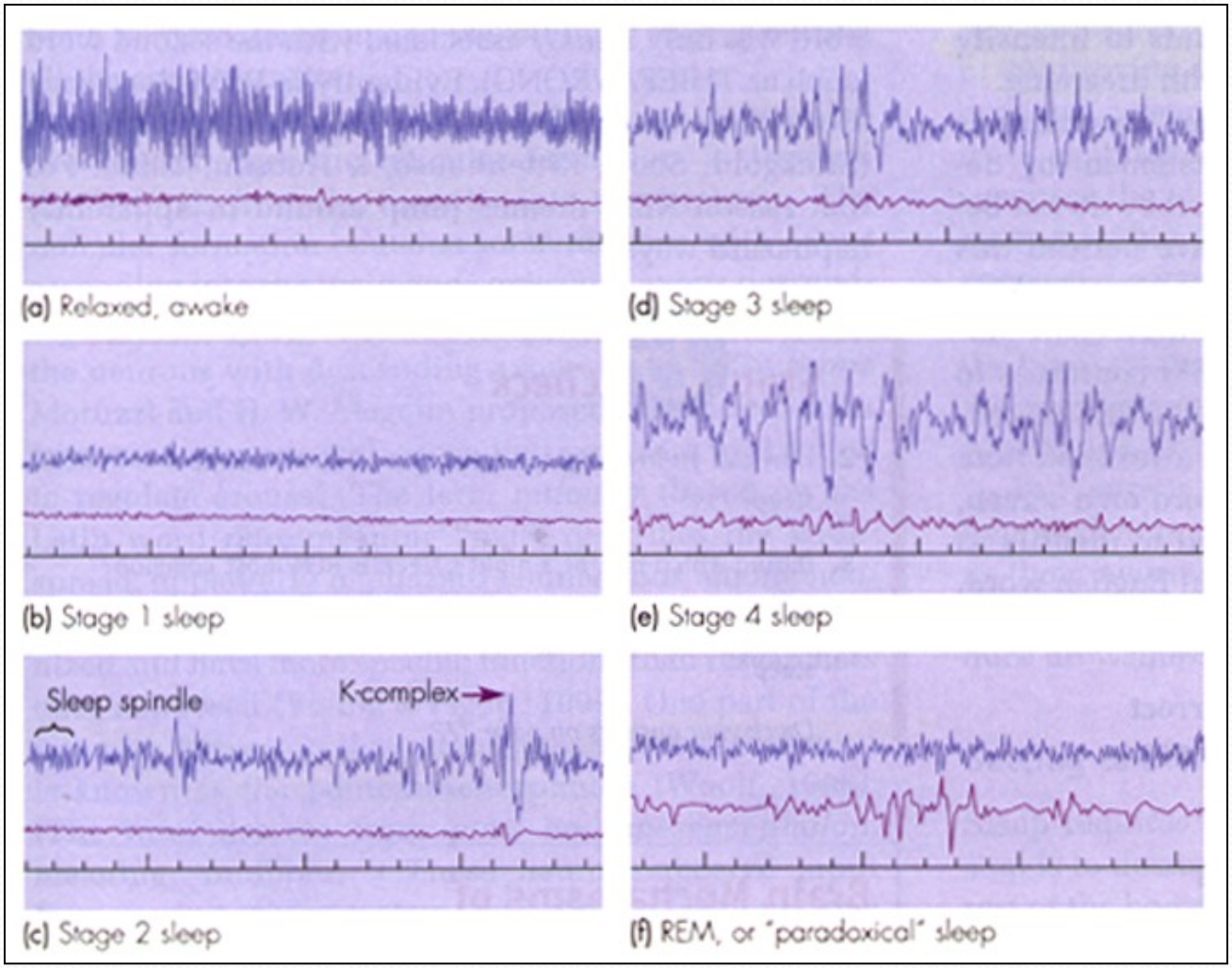


Stages of Sleep

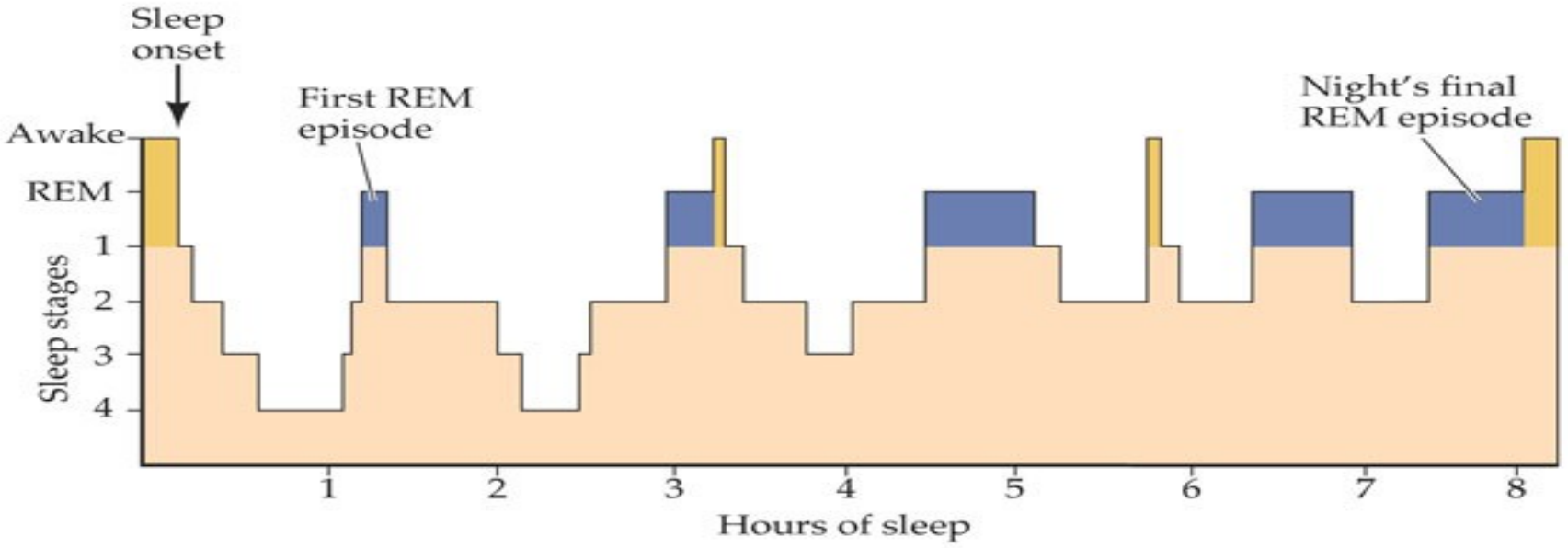
- Stage 1
  - brief transition stage when first falling asleep
- Stages 2 through 4 (slow-wave sleep)
  - successively deeper stages of sleep
- Stage 4
  - Characterized by an increasing percentage of slow, irregular, high-amplitude delta waves



Stages of Sleep



Stages of Sleep



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Sleep Disruptors

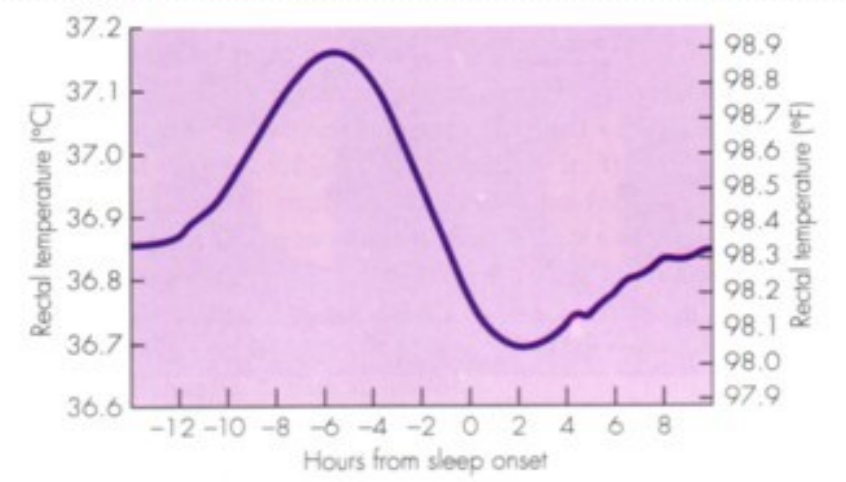
- Stress
- Alcohol
- Light, caffeine
- Travel
- Exercise too close to bedtime
- Bedroom conditions
- Rapid swings in blood sugar

Sleep Hygiene

- Behaviors can be sleep promoting or sleep killers.
  - Daytime sleep is the biggest single sleep killer. The single most effective sleep intervention is daytime sleep *restriction*. Sleepiness is a drive state, like hunger and thirst. Daytime sleep reduces the urge to sleep at night just like a snack can “ruin your supper.”
  - Sleep promoting (recovery) behaviors during the day include waking up at the same time each day, moderate physical exercise, daytime sunlight, staying intellectually and emotionally engaged.
  - *Action: During the day, what do you do to keep yourself, awake, alert, active?*

Daytime alertness

- Keep wake time the same
- Sunlight exposure in am
- goLITE
- Exercise earlier in day



Sleep Hygiene

- Behaviors in the evening and at night that promote sleep include:
  - Winding down in the evening hours, bathing or showering, having a nighttime ritual or routine, listening to quiet or calming music, and getting up from bed if sleep onset latency is greater than 20 minutes.
- Nighttime sleep killers include:
  - Laying in bed awake if sleep onset is delayed, exercise late in the evening, using bed for activities other than sleep.

- *Action: What do you do to prepare for sleep, starting around dinner time?*

Sleep Hygiene

- Affect regulation is an important skill for sleep.
  - Going to sleep angry, sad, frustrated, anxious is a sleep killer.
- Affect regulation skills can include:
  - Progressive Muscle Relaxation (PMR), meditation, journaling, prayer and Bible reading, practicing gratitude.

- *Action: learn PMR, meditation, diaphragmatic breathing.*

Sleep Hygiene

- Sleep hygiene refers to the way we manage our activity level throughout the day and night
- For most individuals with insomnia, it is not necessary to take a pill to sleep. In fact, behavior change outperforms sleep medications whenever research studies compare the two types of therapies.

Sleep Hygiene

- Sleep Environment:
  - What makes you comfortable in bed?
  - Is your room a peaceful sanctuary?
  - A slightly cool room is preferable for most people (67-70F).
  - Many people sleep better in socks
  - Do you need “white noise” such as a fan?
  - Are there bright or BLINKING lights?
  - Do animals have access to you that is disruptive to your sleep?
  - Some people use guided imagery
  - Don’t do anything “mental” in bed except sleep
  - Keep blackberry and cell phone away from bed

Sleep Hygiene

- Do you have problems with an over active mind?
  - Dump your thoughts onto a “to do” list- then start your “settling in” routine

Sleep Hygiene

- Avoid sugar, alcohol and caffeine in evening
- Avoid excessive fluid intake
- Eat a light snack before bedtime
  - A light snack before bed can help promote sleep. When you pair tryptophan–containing foods with carbohydrates, it helps calms the brain and allows you to sleep better. For even better sleep, try adding extra calcium to your dinner or nighttime snack. Experiment with your food habits to determine your optimum evening meals and snacks. For a relaxing bedtime snack, try:
    - Half a turkey or peanut butter sandwich
    - Granola with low–fat milk or yogurt
    - A banana and a cup of hot chamomile tea
    - Almond butter on celery

Sleep Hygiene

- Try to always go to bed at same time
- Have a “settling in routine” an hour before sleep time
  - Warm bath
  - No computer or TV screens
  - Dim lights
  - Read or listen to an audio book, relaxing music
  - Listen to a progressive relaxation tape
  - Light snack
  - Lavender spray/essential oil
  - Humidifier

When to see a doc

- Someone tells you that you stop breathing for short periods during the night
- Severe recurrent nightmares
- Sleep problems associated with behavioral health symptoms such as depression, severe anxiety
- Falling asleep when you are actively doing things like driving, talking
- If you have to get up to urinate more than 6 times a night

Good Reads

- *Getting a Good Night's Sleep* by Nancy Foldvary-Schaefer
- *How to Get a Great Night's Sleep* by H. Valfi and Pamela Valfi
- *Understanding Sleep* by Mark R. Pressman and William C. Orr